User Manual for Code Lock

FMT *Swiss AG*

Contents

FMT *Swiss AG*
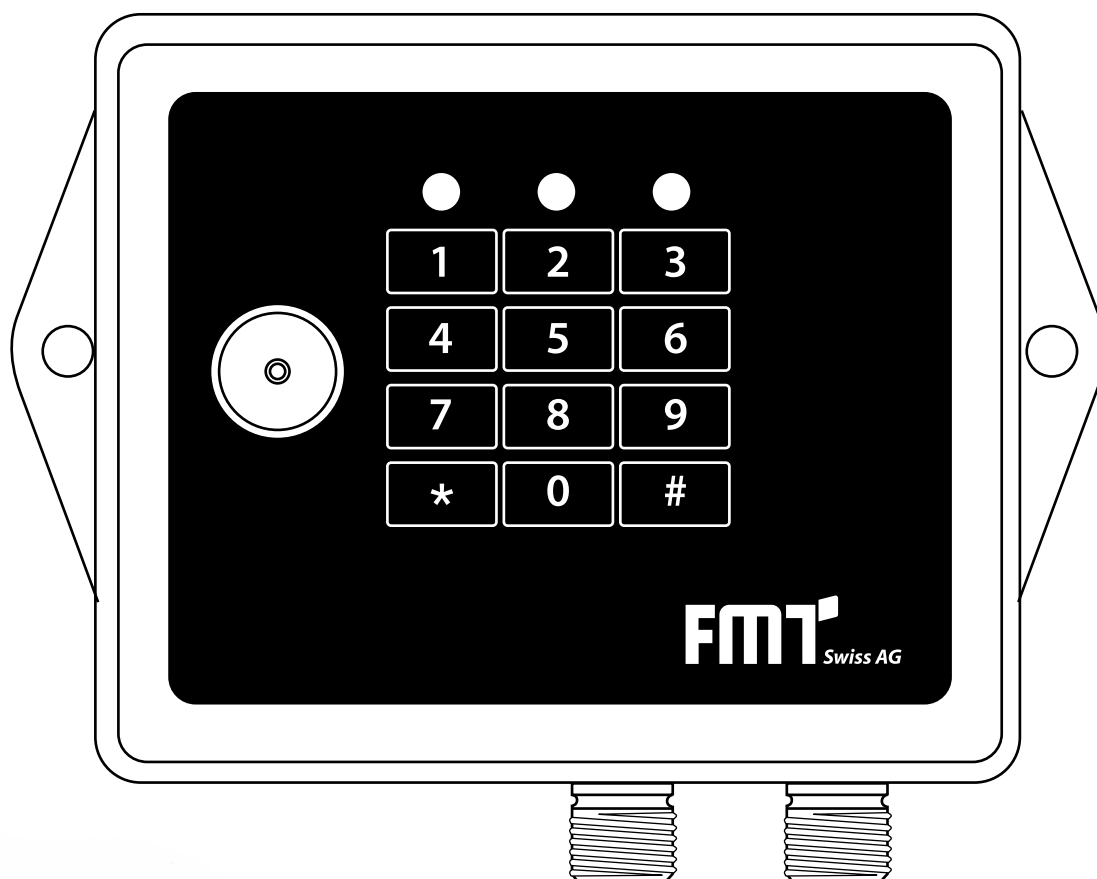
1. Display/control elements and their functions

The hardware is designed so that all LEDs are OFF, and the relay is de-energised.

1.1 LED status display

The device has three light emitting diodes (LEDs): red, yellow, and green. When the device is operational, one of the three LEDs is always illuminated. If none of the LEDs is illuminated, the device has a fault.

The three LEDs indicate:

- **Permanent red:** Device fault, incorrect configuration/device not operational, or no PIN or i-Button saved. Relay is de-energised.
  Flashing red: Device is blocked because of incorrect entry or switch 4 has been set.
  Short flashing red (200 ms): PIN or i-Button has been deleted
  Long flashing red (1 s): All entries deleted.
- **Permanent yellow:** Successfully completed, valid entry process. Relay triggered/closed.
  Short flashing yellow (200 ms): Keypad entry
  Long flashing yellow (1 s): Confirmation that new PIN or Super-PIN has been activated
  Rapid flashing yellow (approx. ¼ second rhythm for 5 s): Waiting for confirmation of "Delete all" in programming mode.
- **Permanent green:** Base state, relay is de-energised.
  Flashing green (approx. 1 second rhythm): Operational state during an incomplete entries of numbers (PIN or Super-PIN for programming mode). At least one key was pressed, and other key presses are expected, until the the entry process has been fully completed.
  Rapid flashing green (approx. ¼ second rhythm): Programming mode is active, entry (PIN, Super-PIN) or i-Button is expected.

1.2 Keypad

The numerical keypad is used to enter the sequence of numbers.

The * (DEL) key discards the entry or action and activates the base state. The relay de-energises/opens.

The # (ENTER) key is used for acknowledgement.

Key or i-Button entries (for programming or activation) are meaningful and possible only in the base state.

1.3 Configuration

There are four DIP switches on the printed circuit board; they are inaccessible from the outside.
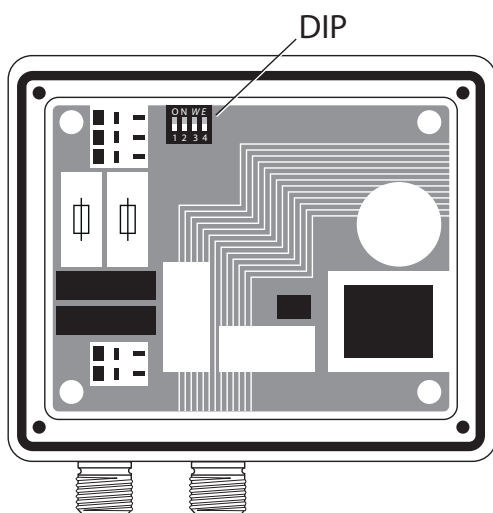
Switch 1: ON – number entry (PIN) activated (standard)

Switch 2: ON – i-Button entry activated

Switch 3: no function

Switch 4: ON – reset Super-PIN

If switch 1 and switch 2 are OFF (invalid setting), the red LED illuminates. This indicates possible corrosion of the contacts.

If switch 4 is ON (reset of the Super-PIN to factory settings), all LEDs flash for approx. 1 second, and after this the red LED flashes to indicate that switch 4 must be switched off again.

1.4 i-Button (optional)

The i-Button is used when only switch 2 is activated (ON).

If switch 1 and switch 2 are activated (ON), both number entry (PIN) and i-Button can be used.

1.5 Electrical connections

Attention!
The installer who carries out the electrical connection is responsible for complying with the applicable directives and regulations.
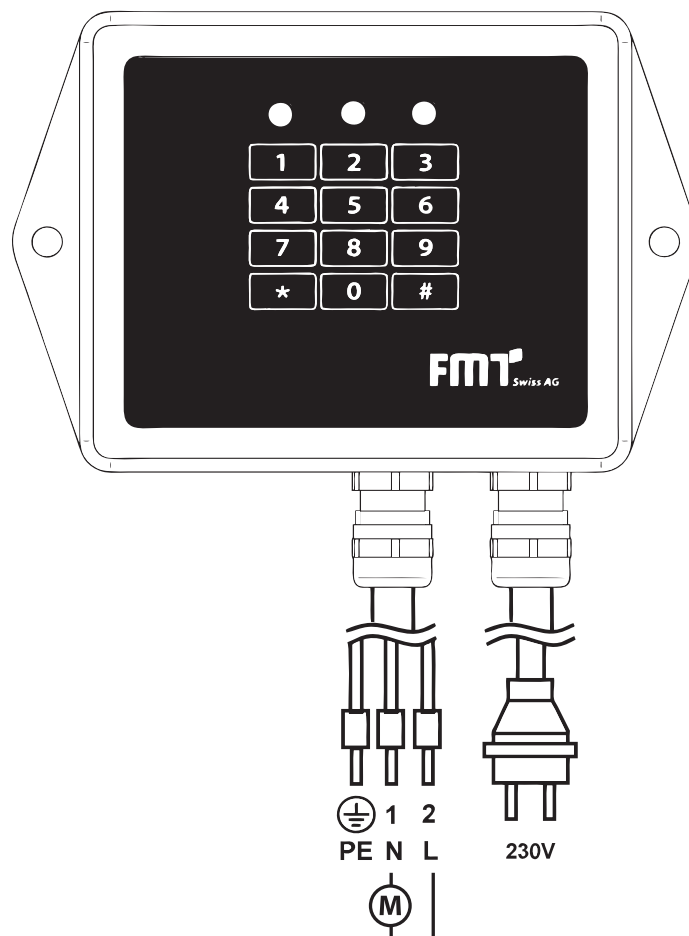
Warning!
- When installing, and carrying out maintenance work, ensure that the power supply cables are not live.
- Always close the cover of the casing before reconnecting the power supply, after you have checked the integrity of the seals which provide protection class IP 54.

Achtung!
Max. switching capacity 250 V AC / 8 A continuous / 10 A peak

2.   Programming

In the programming mode, the i-Button and PINs can be saved or deleted.

A list of maximum 96 i-Buttons and 96 PINs are supported. A freely selectable Super-PIN can be saved.

Programming is carried out from the base state (green LED ON, yellow LED OFF, relay de-energised) or in the error state (red LED ON), if no PINs or i-Button are stored.

The programming mode is activated through the entry of a key sequence with a 6-place number combination (Super-PIN). The programming mode is indicated by the rapid (¼ sec) flashing green LED; invalid entries reset the device back to the base state.

The factory setting of the Super-PIN is:

> # (ENTER) + 3 + 9 + 6 + 1 + 7 + 4 + # (ENTER) + * (DEL)

The number sequence of the factory setting is permanently stored in the device, and cannot be modified.

The Super-PIN can be modified (see below) and thus invalidates the factory setting.

The factory setting can be reactivated by means of switch 4 = ON. This does not delete the stored i-Button and PIN list.

During entry, the green LED starts to flash in 1 second rhythm, and the yellow LED illuminates briefly for each key pressed (approx. 200 ms).

The Super-PIN can be modified. For this, as when activating the programming mode, the full key sequence is: to be entered with a new 6-place number combination, for example:

> # (ENTER) + 9 + 8 + 7 + 6 + 5 + 4 + # (ENTER) + * (DEL)

If the programming mode is active (green LED flashes rapidly), then after entering a 4-place number combination or making contact with the i-Button, this PIN or i-Button can be:

- saved by pressing # (ENTER). The yellow LED illuminates for approx. 1 sec. If the PIN or i-Button already exists, the yellow LED does not illuminate.

- deleted by pressing * (DELETE). The red LED illuminates briefly for 200 ms. If the PIN or i-Button does not already exist, the red LED does not illuminate.

- If * (DEL) is pressed continuously, i.e. for approx. 2 sec, all PINs and i-Buttons can be deleted. The yellow LED changes to rapid flashing, and requires confirmation by pressing # (ENTER) within approx. 5 sec. Upon confirmation, the red LED illuminates for approx. 1 second, thereby indicating deletion.

- **Program the time for automatic de-energisation of relay**

- Press down a key between 0 and 9 for 2 seconds
- Release the key
- Yellow LED illuminates for approx. 1 second (programming OK)

Key	Programmed relay de-energisation time
0	No limit (manual de-energisation)
1	05 sec.
2	15 sec.
3	30 sec.
4	60 sec.
5	03 min.
6	05 min.
7	10 min.
8	15 min.
9	30 min.

FMT *Swiss AG*

The programming mode is exited or a PIN entry is rejected by entering * (DEL).
The programming mode is exited automatically if no entry is made within 60 seconds.
If no key is pressed for 30 seconds during the PIN entry, the entries so far are rejected and the green LED flashes again. If there is no entry within another 30 seconds, the programming mode is exited as described above, and the device changes to the base state (green LED illuminates, relay is de-energised).

3.   Operation

When the device is switched on, it is in the base state; the green LED is illuminated and the relay is de-energised.

If the i-Button is active (switch 2: ON), when contact is made with the i-Button, its validity is checked. Only then is release indicated by means of the yellow LED. The green LED integrated into the i-Button flashes briefly in 1 second rhythm to indicate its operational state.

If an i-Button in the recess of the reader is pressed, the yellow LED illuminates briefly to indicate that reading has been carried out. In this case, the reader is blocked for approx. 6 seconds; this is sufficient time to remove the i-Button from the reader again.

If the PIN is activated (switch 1: ON) the release is achieved through entry of a 4-place code.

In this case, a 4-place number can be entered in the base state (green LED is illuminated).

During the entry, the green LED flashes in 1 second rhythm.

When the entry is complete (4 numbers), and the number is identical to the internally saved PIN, the yellow LED illuminates, and the relay is energised.

If no entry is made within 30 seconds, the device automatically returns to the base state, and the green LED is again illuminated. Using * (DEL), entry of a number can be interrupted; the green LED is again permanently illuminated in the base state.

In the case of an incorrect entry or an invalid i-Button, the device flashes red for approx. 3 seconds, and then returns back to the base state.

If 5 incorrect PINs are entered consecutively, the device is blocked for 10 minutes, and it displays a flashing red LED. This is intended to avoid that PINs can be ascertained through repeated entry attempts.

If there is an invalid i-Button, there is no count of attempts, and the device does not block. This is because, in contrast to the entry of PINs, there is no possibility of unlimited numbers of attempts.

4.   Hardware

- Dimensions of printed circuit board approx. 80 x 100 mm
- Twin-terminal fuse protection
- Twin-terminal switching contacts
- Radio interference suppression on the relay contacts
- Max. switching capacity 250 V AC / 8 A continuous / 10 A peak
- Keypad: 10-key block with 2 special keys * (DEL) and # (ENTER)
- 3 LEDs for operational display (red, yellow, green)
- Optional i-Button
- Set of 4 DIP switches for configuration
- Wide temperature range: +40 to -40 °C

FMT *Swiss AG*

5. Repairs/service

The code lock has been developed and manufactured according to the highest quality standards. Should a problem occur in spite of all quality measures, please contact our service department:
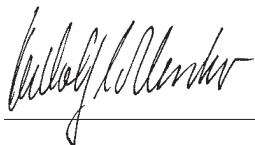
FMT Swiss AG
Tel. +49 9462 17-216
Fax +49 9462 1063
service@fmtag.ch

6. EC declaration of conformity

We hereby state that the appliance described below, in the model which we have made commercially available, complies in its design and construction with the EU directives. If a change has been to the appliance, and this has not been agreed with us, this statement loses its validity.

Designation of device	code lock
Device type	code lock
Baujahr	siehe Typenschild
Applicable EC directives	EC Low Voltage directive (73/23/EEC) EC Electromagnetic Compatibility (89/336/EEC) subsequently 93/31/EEC
Applied national standards	DIN VDE 0843 T1

30 June 2012   FMT Swiss AG

Dipl.-Ing. Rudolf Schlenker